

ATTN: Director

Manitoba Sustainable Development Environmental Approvals Branch 1007 Century Street Winnipeg MB, R3H oW4 June 5th, 2020

Dear Director,

Fast Brothers (1978) Ltd. is applying for a Class 1 development licence, with the intention of operating it in various locations in Manitoba. The first location of our plant is to be in Emerson, Manitoba. We intend to provide concrete to Maple Leaf Construction Ltd. for Manitoba Infrastructure Project 7057 – Intersection Improvements – PTH 75 at PR 243 in July 2020. We are requesting that the review of our proposal be expedited in order to prevent any delay to this project.

Please see the enclosed Environmental Act Proposal Form and Environmental Assessment Report.

If you have any questions regarding this proposal please call at 204-470-3156 or email at jason@fastbrothersltd.com.

Sincerely,

Jason Schram, EIT Project Manager Fast Brothers (1978) Ltd.



Name of the development: Fast Brothers Portable C	oncrete Batch Plant
Type of development per Class Class 1	ses of Development Regulation (Manitoba Regulation 164/88):
Legal name of the applicant: Fast Brothers (1978) Ltd	
Mailing address of the applicar	^{nt:} PO Box 177
Contact Person: Jason Schr	am
City: Blumenort	Province: Manitoba Postal Code:
Phone Number: (204) 470-315	6 Fax: email: jason@fastbrothersltd.com
Location of the development:	49.0004397, -97.311235
Contact Person: Jason Schr	am
Street Address: PR 200 and	5th Street West
Legal Description: 8-3-1-2 E	1
City/Town: Emerson	Province: Manitoba Postal Code:
Phone Number: (204) 470-315	6 Fax: email: jason@fastbrothersltd.com
Name of proponent contact pe	rson for purposes of the environmental assessment:
Jason Schram	
Phone: (204) 470-3156	Mailing address: PO Box 117
Fax:	
Email address:jason@fastbrot	hersltd.com
Webpage address:	
Date: 2020.05.20	Signature of proponent, or corporate principal of corporate proponent:
Date. 2020-00-20	Printed name: A Day Ary FAT Pravide +
PRINT	RESET

A complete **Environment Act Proposal (EAP)** consists of the following components:

Cover letter

Environment Act Proposal Form

Reports/plans supporting the EAP (see "Information Bulletin - Environment Act Proposal Report Guidelines" for required information and number of copies)

Application fee (Cheque, payable to Minister of Finance, for the appropriate fee)

Per Environment Act Fees Regulation (Manitoba Regulation 168/96):

Class 1 Developments	\$1,000 \$7,500
Class 3 Developments:	e \$10.000
Water Developments	\$60,000
Energy and Mining	\$120,000

Submit the complete EAP to:

Director

Environmental Approvals Branch Manitoba Sustainable Development 1007 Century Street Winnipeg, Manitoba R3H 0W4

For more information:

Phone: (204) 945-8321 Fax: (204) 945-5229 http://www.gov.mb.ca/sd/eal



ENVIRONMENTAL ASSESSMENT REPORT

PORTABLE CONCRETE BATCH PLANT



EXECUTIVE SUMMARY

Fast Brothers (1978) Ltd. (Fast Brothers) is requesting an environmental permit to operate a portable concrete batch plant to be able to supply concrete to infrastructure projects in Manitoba. Fast Brothers will begin the operation of the plant by providing concrete to Maple Leaf Construction Ltd. (MLC) on Manitoba Infrastructure (MI) Project 7057, PTH 75 at the intersection of PR 243, near Emerson, Manitoba. As with all plants, there are some minor environmental and health effects that may be present, but are easily mitigated with the standards and guidelines that we adhere to.



INTRODUCTION AND BACKGROUND

Fast Brothers (1978) Ltd. (Fast Brothers) has been operating a gravel pit, excavating, placing gravel, and performing snow removal in southeast Manitoba since 1978. Fast Brothers is currently a member of Manitoba Heavy Construction Association (MHCA) and Concrete Manitoba. Recently the company began to receive requests from customers to supply concrete for items like roadways and ditch channels.

A portable concrete batch plant was purchased to manufacture concrete for use on infrastructure projects of that nature. We have also plan to supply concrete for Manitioba Infrastructure (MI) Contract 7057 under Maple Leaf Construction Ltd. (MLC). The concrete batch plant to be used is an Axiom – Reliable Mix – RMX100, capable of producing 100 cubic meters of concrete per hour. The details of the plant are included in the appendix A.

FACILITIES AND OPERATION

The concrete batch plant stores, weighs, and accurately deposits the components of concrete, stone, sand, portland cement powder, fly ash, water, and admixtures directly into concrete mixer trucks. The details of these components are included in the appendices. Our plant includes two bins for containment of the aggregate components, two hoppers for the cementitious materials and an enclosed trailer that serves as storage to the liquid components. The plant is run by a small generator that is mounted, along with its fuel tank, on the rails of the plant itself. The plant site will receive deliveries of cement powder, fly ash, and aggregate in semi truck trailers. The concrete will leave the site in mixer trucks.

The first location we intend to set up the plant is near Emerson, Manitoba on a property owned by MI, at the intersection of PTH 75 and PR 200. This site has previously been used for the operation of a portable concrete batch plant. The details of this property are included in the appendix E.

IMPACTS AND MITIGATION

Fast Brothers anticipates there will be very minimal environmental, public health, and socioeconomic impacts due to the mobilization and operation of our plant. The minor effects or potential hazards that may be encountered include, air-borne dust, noise, green house gas emissions, the storage of fuel and chemicals, the use of water, release of water and concrete washout, and the flow of truck traffic in the area around the plant.

Fast Brothers will operate the plant and associated jobsites within the guidelines and regulations set out by the Manitoba Environmental Act, The Workplace Health and Safety



Act, and any other applicable federal, provincial, or municipal standards or requirements relevant to the location of the plant operation. The MHCA Best Management Practice for Redi-Mix Concrete plants (included in appendix F) will be adhered to. We will also go through an audit conducted by Concrete Manitoba as required; the details of the audit are included in appendix F

The following are some of the possible impacts of operating the plant, and the measures that will be taken to reduce their impact and/or eliminate them completely.

DUST

The manufacturing of concrete involves the handling of aggregate and portland concrete cement powder, and can result in airborne dust. Similarly, traffic on site may result in airborne dust in dry conditions. Such dust would contain fine particles that may irritate the lungs.

Dust from the plant will be controlled, by the use of WAM silotop filters on the cement storage hoppers, designed specifically or the fine dust in the cement powder. Details on the filters are included in the appendix A. Dust from the deposit of material into the mixer trucks is minimized by a sock, designed to eliminate blowing dust. Dust from the movement of traffic will be controlled by spraying the storage locations down with water as required.

NOISE

While the plant is in operation there will be noise on site from the moving components on the plant, engines running, and heavy equipment moving around the site.

To mitigate the potential impact, the plant will only operate during daylight hours and, as with this proposal, will typically be located in non-residential areas.

POLLUTION AND BY-PRODUCTS

The operation and maintenance of the plant and trucks will produce some waste.

All metal components replaced or removed from the plant will be taken for recycling. General waste such as grease tubes, tires, belting, miscellaneous packaging, and trash will be minimal, but stored in garbage bins and taken to an approved landfill. There is no hazardous waste associated with a concrete batch plant.



GREENHOUSE GASES

The batch plant operates on a diesel generator that will release greenhouse gases. The concrete trucks, staff vehicles, and maintenance vehicles operate on diesel or gasoline fuel.

The plant we have purchased is a new and efficient plant. We will perform proper routine maintenance, and only operate it within the recommended operating conditions to best reduce the potential of the plant burning excess fuel. During the operation the idle time of concrete mixers and staff vehicles will be kept to a minimum and all vehicles will be properly maintained.

FUEL STORAGE

Diesel fuel will be stored on-site to fuel concrete mixer trucks, and the plant's generator. Storage of liquids involve the possibility of a spill.

Fuel leaks will be avoided with the use of approved storage tanks, and storing the smallest possible amount of fuel. The first location we plan to set up is near a gas station and will not require on-site storage. Spill kits will be kept on-site. Consistent with Manitoba laws, emergency numbers will be posted on-site, proper authorities will be alerted in the event of a spill, and the waste will be properly cleaned and disposed of.

ADMIXTURE STORAGE

Concrete admixtures such as BASF's Polyheed 980 and MasterAir AE200, will be stored on-site. The storage of these chemicals has a risk of spill.

Admixtures will be stored in a trailer, in approved storage containers. Similar to fuel, the same spill precautions and procedures will be followed.

WATER TAKING

Concrete batching requires water as one of the components. A water source will be required to operate the plant. Heavy use of water can involve drawdown on wells in the vicinity of the plant or have a negative effect on fish habitats.

To mitigate this, water will be taken from approved sources. Our first location will draw from the town of Emerson's supply. The manufacture of concrete requires clean water, so water is typically hauled in from approved sources that do not affect plant or animal habitats.



WATER RELEASE AND CONCRETE WASHOUT

The release of water and concrete from washing out and cleaning trucks may result in concrete and water high pH water into the surrounding area.

Water and concrete from washing out concrete mixers will always be deposited in a location approved beforehand by contract authorities and land owners. We typically use a small bermed off area near the plant. Concrete washout will be hauled back to our pit in Blumenort for crushing. When practical, other items will be made with excess concrete. After materials have been settled out the water can be used for dust suppression. If erosion or sedimentation occurs at or near the plant, silt fence or straw wattle will be installed.

COMPACTION AND ROAD DAMAGE

The plant and surrounding area will be subject to heavy loading from the mobilization and operation of the plant as well as truck traffic.

Our trucks will adhere to legal weight limits, with possible agreements with relevant agencies or landowners to moderately increase the loading. If roads are significantly damaged as the job progresses, they will be maintained. In general the location of the plant ends up being regraded to ensure the land functions as it did prior to the plant's operation.

MONITORING

Fast Brothers plans to regularly review and document environmental checklists, along with daily job hazard analysis to ensure that known items of potential harm are being monitored. Discovery of any other items that arise that may cause harm to the health of the public or environment can be addressed if they arise.

SITE RESTORATION

When the plant is moved, the site will be returned to its previous condition. The garbage, dust, and debris will be taken back to our pit, or disposed of at a landfill. Any damage done to the roadways will be restored. As per the spill mitigation measures outlines for fuel and admixtures, and spills will cleaned up, and properly disposed of.



CONCLUSION

In general, the effects of the our portable concrete batch plant are extremely minimal. By following the applicable policies and procedures, as well as the items outlined in this document, no environmental issues will arise from the operation of the concrete plant.

Fast Brothers is passionate about the communities it serves. We endeavor to operate a concrete plant that can provide quality infrastructure that has a net positive impact on the environment and the health of the residents in the locations it operates.



APPENDIX A PLANT INFORMATION







The RMX-100 is a fast moving, portable concrete batch plant. These highly portable plants can be set up in less than 30 minutes and hauled without special permits. Their design also allows them to be accessed by mixers in 180 degrees so it can be conveniently reached regardless of the job site conditions.

The RMX 100 reduces the number of transit mixers required to service a job by moving a portable plant closer to the job-site. Fewer trucks mean lower capital costs, less maintenance, lower fuel costs, and less chance of rejected loads.



Aggregate Bins	Two
Storage per Bin	20 Ton/18 Tonne
Cement Silos	Single*
Storage per Silo	30 Ton/27 Tonne
Main Conveyor Size	26 inch
Conveyor Drive HP	10Hp
Belt Type	Cleated
Cement Augers	2x10 inch
Cement Augers Drive	15Hp
Water Pump Size	2 inch
Water Meter Size	2 inch
Dust Collection	Yes
Number of Axles	Single

Production	Length	Width	Working Height	Transport Height
100 yds/76	48 ft	8' 6"	22 '	13' 6"
m3 hr				

* these specifications are representative of the single silo model.



Work Mode:



1'-11 3/4"





The RMX-100 comes standard with a single 30 ton/27 tonne silo. This model is most effective when used in operations where one type of cement powder is being used. This model's large capacity silo allows it to be loaded once then left to complete its batching process when an automated system is being used.

Number of Silos	Storage per Silo	Number of Shear Beam Load Cells	Number of Dust Collectors
1	30 ton/27 tonne	4	1

The RMX-100 is also available in a dual silo design. This model is ideal for operations where two different types of cement powders are being used such as in fly ash operations. The dual silo design also allows for more continuous loading as one silo can be loaded while the other is weighed for batching.

Number of Silos	Storage per Silo	Number of Shear Beam Load Cells	Number of Dust Collectors
2	15 ton/14 tonne	6	2





Components

Delivery Conveyor:

- Chevron, 26" wide belting
- Rollers and idlers
- 10" diameter tail pulley (adjustable for tensioning)
- 12" diameter head pulley
- Electric 10 HP motor with gear box

Control Box:

- NEMA 4 rated enclosure
- 2" water metering controller, (optional 3")
- Emergency stop panic button, with perimeter safety shutoff
- Three channel scale readout
- Manual cement control

Air Compressor System:

- Capacity- 80 gallon with air dryer
- 7.5 HP motor
- Pneumatic lines to aerator for the cement silo
- Air dryer

Chassis:

- Single bolt-on axle
- Tires: 255/70R x 22.5
- Air breaks / maxi pots
- D.O.T. standard lighting

- Gravel Bin:
- Capacity- 20 ton/18 tonne each
- Four shear beam load cells
- Clam gate
- Bin Vibrator

Sand Bin:

- Capacity- 20 ton/18 tonne each
- Four shear beam load cells
- Clam gate
- Bin vibrator

Cement Silo

- Capacity- 30 ton/27 tonne
- Centre fill hatch with cover, 12" opening
- 4" blow in fill line
- Man-hatch, 36" diameterTop access ladder, handrails are optional
- Two 10" augers with 15 HP drives

Dust Control System:

- Top mounted on silo
- Cement dust suppression filter
- Automatic pulsating air
- Flip over mounting bracket with winch

*the Components above are given for a single bin RMX 100 Model

RMX Model Comparison

Model	RMX 100	RMX 100 Twin Silo	RMX 150
Hourly Production	Hourly Production 100 yds/76m3		150 yds/115m3
Number of Aggregate Bins	Тwo	Two	Two
Aggregate Storage per Bin	20 ton/18 tonne	20 ton/18 tonne	21 ton/19 tonne
Number of Cement Silos	One	Two	One
Cement Storage per Silo	30 ton/27 tonne	15 ton/13.6 tonne	40 ton/36 tonne
Main Conveyor Size	26 inch	26 inch	30 inch
Cement Augers	Two x 10 inch	Two x 10 inch	One x 10 inch
Cement Auger Drive HP	15 HP	15 HP	40 HP
Water Pump Size	2 inch	2 inch	3 inch
Water Meter Size	2 inch	2 inch	3 inch
Portability	Portable	Portable	Portable
Number of Axles	Single	Single	Dual
Length	48 ft (14.6m)	48 ft (14.6m)	65 ft 9 in (20m)
Width	8 ft 6 in (2.59m)	8 ft 6 in (2.59m)	10 ft (3.05m)
Transport Height13 ft 6 in (4.1m)		13 ft 6 in (4.1m)	13 ft 6 in (4.1m)
Working Height	22 ft (6.7m)	22 ft (6.7m)	27 ft 2 in (8.3m)
Pin Weight	19, 290.5 lbs (8,750kg)	19, 290.5 lbs (8,750kg)	15,873.3lbs (7,200kg)
Axel Weight	18, 739.3 lbs (8500kg)	18, 739.3 lbs (8500kg)	36, 993.6 lbs (16, 780kg)





Contact Us

PO Box 6071; 3704-61 Ave. Innisfail, AB, T4G 1S7 Canada

Office: **403.227.2820** Email: **info@reliablemix.ca** www.reliablemix.ca





Axiom Industrial Manufacturing





Environmental Assessment Report - Appendices

BROTHERS LTD EXCAVATING - GRAVEL - SNOW REMOVAL CUTTING-EDGE DUST FILTRATION TECHNOLOGY

SILOTOP[®] zero is a cylindrically shaped dust collector for venting pneumatically filled silos. Its stainless steel body contains vertically mounted POLYPLEAT[®] filter elements. The air jet cleaning system is integrated into the hinged weather protection cover.

Dust separated from the air flow by special filter elements drops back into the silo after an integrated automatic pulse-jet air cleaning system has removed it from the filter media.

Air filtration capacity has been increased through new high performance filter media, which require less filter surface area. This results in a lower pressure drop and dust emissions of less than 1mg/Nm³.



SILOTOP® zero 14 m²

Overall Dimensions

CODE	BODY Ø mm [in]	FILTER SURFACE m² [sq ft]	MAX. HEIGHT WHEN CLOSED mm [in]	MAX. HEIGHT WHEN OPEN mm [in]	WEIGHT kg [lb]
SILAB 14	800 [31.5]	14.0 [150]	1,100 [43.3]	1,850 [72.8]	68 [150]
SILAB 24	800 [31.5]	24.5 [264]	1,100 [43.3]	1,850 [72.8]	79 [174]

Features

- Dust emission < 1 mg/Nm³ due to filter media certified EN ISO 16890-1:2016, Group ISO ePM_{2.5}65%
- Air flow performance increased by 30%
- **Compact** 800 mm (30 in) diameter stainless steel body with bottom flange
- Maintenance-free air jet cleaning unit integrated into weather protection cover
- Maintenance height = 1,100 mm (3.6 ft)
- Extended durability due to zero filter media POLYPLEAT® elements
- Safe weather protection cover with lockable quick release Easy and Safe Maintenance



Benefits

- X Perfectly accessible due to compact design
- **L** Rugged construction
- Lightweight POLYPLEAT® filter elements easily replaceable by one operator only
- **Eco-friendly zer**® filter media



Accessories

- Weld-on bottom ring
- Multifunctional electronic differential pressure meter
- Winter protection for solenoid valves
- Emission sampling kit



Application









Cement Mill Test Report

Date of Issue: May 14, 2019

Plant: Product: Manufactured: Exshaw AB Portland Cement Type GU April 1 - 30, 2019

CHEMICAL ANALYSIS		PHYSICAL	ANALYSIS		
Item	Spec limit	Test Result	Item	Spec limit	Test Result
Rapid Method, X-Ray					
SiO2 (%)		19.9			
AI2O3 (%)		3.8	Blaine Fineness (m2/kg)		423
Fe2O3 (%)		3.5			
CaO (%)		62.2	Retained 45 um (%)	28 max	1.0
MgO (%)	5.0 max	4.6			
SO3 (%)	3.0 max **	2.9	Autoclave expansion (%)	1.0 max	0.04
Loss on ignition @ 950 (%)	3.0 (3.5) max ***	2.0			
Loss on ignition @ 550(%)	3.0 max	0.8	Compressive strength (MPa)		
Insoluble residue (%)	1.5 max	0.12	1 day		17.3
			3 day	14.5 min	28.1
			7 day	20.0 min	34.2
Inorganic Process Addition (Cement Kiln Dust)	5.0 max		28 day (March 2019 Results)	26.5 min	42.8
(Time of setting (minutes)		
Potential Phase Composition			Vicat Initial	45 - 375	97
C3S (%)		62.7			
C2S (%)		9.9	Mortar Bar Expansion (%) (C5)*	0.020 max	0.009
C3A (%)		4.1			
C4AF (%)		10.8			
Other Chemical Information			<u> </u>		

NaEq (%) Weekly Averages

Week Ending 04/07 0.52 04/14 0.51 04/21 0.52 04/28 0.53

* Latest available value (Q1 2019) ** May exceed 3.0% SO3 maximum based on our A3004-C5 results of <0.020% expansion at 14 days. *** May exceed 3.0% LOI maximum based on our LOI at 550C <3.0%.

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of the applicable specification for Type GU.

CSA A3001-18 STANDARD SPECIFICATIONS FOR TYPE GU CEMENT.

Lafarge Canada Inc. - Exshaw Plant P.O. Box 160, Highway 1A, Exshaw AB TOL 2C0 Phone: 403-673-3815

haze. Certified By: John W Blair

Quality Manager

APPENDIX B

CEMENT INFORMATION





Cement

FLY ASH TEST REPORT

Analysis by:	Edmonton Mortar Lab
Sample from :	Sundance Power Plant
Average Analysis:	April 2019
Test Report Number	5-19 CSA

Chemical Analysis

Silicon Dioxide (SiO ₂)	56.4	%
Aluminum Oxide (Al ₂ O ₃)	24.1	%
Iron Oxide (Fe ₂ O ₃)	4.0	%
Total $(SiO_2) + (Al_2O_3) + (Fe_2O_3)$	84.5	%
Sulphur Trioxide (SO ₃)	0.1	%
Calcium Oxide (CaO)	9.0	%
Magnesium Oxide	1.0	%
Moisture Content	0.06	%
Loss on Ignition	0.53	%
Total Alkalies as Equivalent Na ₂ O	2.35	%

Physical Analysis

Fineness Retained on 45 um (No. 325 Sieve)	23.1 %
Strength Activity Index with Portland Cement	
% of Control at 28 Days (previous month's result)	88 %
Water Requirement, Percent of Control	94 %
Autoclave Expansion	0.03 %
Density	2.05 g/cm ³

We hereby certify that the composite fly ash sample above meets the chemical and physical requirements of CAN/CSA A3001 for Type F Fly Ash.

Kohnt J. Shoepen Certified :

WESTERN REGION 5400 West Marginal Way SW, Seattle, Washington 98106-1517 Office: 206.923.0098 or 800.477.0100 Fax: 206.923.0388

APPENDIX C FLY ASH INFORMATION



MASTER® BASF SOLUTIONS We create chemistry

Cast-in-Place Concrete	03 30 00	
Precast Concrete	03 40 00	0
Mass Concrete	03 70 00	3

MasterAir® AE 200

Air-Entraining Admixture

Description

MasterAir AE 200 airentraining admixture provides concrete with extra protection by creating air bubbles that are ultrastable, small and closely spaced – a characteristic especially useful in the types of concrete known for their difficulty to entrain and maintain the air content desired.

Even when used at a lower dosage than standard airentraining admixtures, MasterAir AE 200 admixture meets the requirements of ASTM C 260, AASHTO M 154, and CRD-C 13.

Applications

Recommended for use in: Concrete exposed

to cyclic freezing and thawing

 Production of high-quality normal or lightweight concrete (heavyweight concrete normally does not contain entrained air)

Features

- Ready-to-use in the proper concentration for rapid, accurate dispensing
- Greatly improved stability of air-entrainment
- Ultra stable air bubbles

Benefits

- Increased resistance to damage from cyclic freezing and thawing
- Increased resistance to scaling from deicing salts
- Improved plasticity and workability
- Improved air-void system in hardened concrete
- Improved ability to entrain and retain air in low-slump concrete, concrete containing high-carbon content fly ash, concrete using large amounts of fine materials, concrete using high-alkali cements, high-temperature concrete, and concrete with extended mixing times
- Reduced permeability increased watertightness
- Reduced segregation and bleeding

Performance Characteristics

Concrete durability research has established that the best protection for concrete from the adverse effects of freezing and thawing cycles and deicing salts results from: proper air content in the hardened concrete, a suitable air-void system in terms of bubble size and spacing and adequate concrete strength, assuming the use of sound aggregates and proper mixing, transporting, placing, consolidation, finishing and curing techniques. MasterAir AE 200 admixture can be used to obtain adequate freezing and thawing durability in a properly proportioned concrete mixture, if standard industry practices are followed.

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APPENDIX D

ADMIXTURE INFORMATION



MasterAir AE 200

Air Content Determination: The total air content of normal weight concrete should be measured in strict accordance with ASTM C 231, "Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method" or ASTM C 173/C 173/M, "Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method."

The air content of lightweight concrete should only be determined using the Volumetric Method. The air content should be verified by calculating the gravimetric air content in accordance with ASTM C 138/C 138M, "Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete." If the total air content, as measured by the Pressure Method or Volumetric Method and as verified by the Gravimetric Method, deviates by more than 1.5%, the cause should be determined and corrected through equipment calibration or by whatever process is deemed necessary.

Guidelines for Use

Dosage: There is no standard dosage for MasterAir AE 200 admixture. The exact quantity of air-entraining admixture needed for a given air content of concrete varies because of differences in concrete making materials and ambient conditions. Typical factors that might influence the amount of air entrained include: temperature, cementitious materials, sand gradation, sand-aggregate ratio, mixture proportions, slump, means of conveying and placement, consolidation and finishing technique.

The amount of MasterAir AE 200 admixture used will depend upon the amount of entrained air required under actual job conditions. In a trial mixture, use 0.125 to 1.5 fl oz/cwt (8-98 mL/100 kg) of cement. In mixtures containing water-reducing or set-control admixtures, the amount of MasterAir AE 200 admixture needed is somewhat less than the amount required in plain concrete. Due to possible changes in the factors that can affect the dosage of MasterAir AE 200 admixture, frequent air content checks should be made during the course of the work. Adjustments to the dosage should be based on the amount of entrained air required in the mixture at the point of placement. If an unusually high or low dosage of MasterAir AE 200 admixture is required to obtain the desired air content. consult your Local sales representative. In such cases, it may be necessary to determine that, in addition to a proper air content in the fresh concrete, a suitable air-void system is achieved in the hardened concrete.

Technical Data Sheet

Dispensing and Mixing: Add MasterAir AE 200 admixture to the concrete mixture using a dispenser designed for air-entraining admixtures; or add manually using a suitable measuring device that ensures accuracy within plus or minus 3% of the required amount. For optimum, consistent performance, the air-entraining admixture should be dispensed on damp, fine aggregate or with the initial batch water. If the concrete mixture contains lightweight aggregate, field evaluations should be conducted to determine the best method to dispense the air-entraining admixture.

Precaution

In a 2005 publication from the Portland Cement Association (PCA R&D Serial No. 2789), it was reported that problematic air-void clustering that can potentially lead to above normal decreases in strength was found to coincide with late additions of water to air-entrained concretes. Late additions of water include the conventional practice of holding back water during batching for addition at the jobsite. Therefore, caution should be exercised with delayed additions to air-entrained concrete. Furthermore, an air content check should be performed after post-batching addition of any other materials to an airentrained concrete mixture.

Product Notes

Corrosivity – Non-Chloride, Non-Corrosive: MasterAir AE 200 admixture will neither initiate nor promote corrosion of reinforcing and prestressing steel embedded in concrete, or of galvanized steel floor and roof systems. No calcium chloride or other chloride-based ingredients are used in the manufacture of this admixture.

Compatibility: MasterAir AE 200 admixture may be used in combination with any BASF admixture, unless stated otherwise on the data sheet for the other product. When used in conjunction with other admixtures, each admixture must be dispensed separately into the mixture.

MasterAir AE 200

Storage and Handling

Storage Temperature: MasterAir AE 200 admixture should be stored and dispensed at 35 °F (2 °C) or higher. Although freezing does not harm this product, precautions should be taken to protect it from freezing. If it freezes, thaw and reconstitute by mild mechanical agitation. Do not use pressurized air for agitation.

Shelf Life: MasterAir AE 200 admixture has a minimum shelf life of 18 months. Depending on storage conditions, the shelf life may be greater than stated. Please contact your Local sales representative regarding suitability for use and dosage recommendations if the shelf life of MasterAir AE 200 admixture has been exceeded.

Safety: MasterAir AE 200 admixture is a caustic solution. Chemical goggles and gloves are recommended when transferring or handling this material. (See SDS and/or product label for complete information.)

Packaging

MasterAir AE 200 admixture is supplied in 55 gal (208 L) drums, 275 gal (1040 L) totes and by bulk delivery.

Related Documents

Safety Data Sheets: MasterAir AE 200 admixture

Additional Information

For suggested specification information or for additional product data on MasterAir AE 200 admixture, contact your local sales representative.

The Admixture Systems business of BASF's Construction Chemicals division is the leading provider of solutions that improve placement, pumping, finishing, appearance and performance characteristics of specialty concrete used in the ready-mixed, precast, manufactured concrete products, underground construction and paving markets. For over 100 years we have offered reliable products and innovative technologies, and through the Master Builders Solutions brand, we are connected globally with experts from many fields to provide sustainable solutions for the construction industry.

Limited Warranty Notice

BASF warrants this product to be free from manufacturing defects and to meet the technical properties on the current Technical Data Guide, if used as directed within shelf life. Satisfactory results depend not only on quality products but also upon many factors beyond our control. BASF MAKES NO OTHER WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ITS PRODUCTS. The sole and exclusive remedy of Purchaser for any claim concerning this product, including but not limited to, claims alleging breach of warranty, negligence, strict liability or otherwise, is shipment to purchaser of product equal to the amount of product that fails to meet this warranty or refund of the original purchase price of product that fails to meet this warranty, at the sole option of BASF. Any claims concerning this product must be received in writing within one (1) year from the date of shipment and any claims not presented within that period are waived by Purchaser. BASF WILL NOT BE RESPONSIBLE FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFITS) OR PUNITIVE DAMAGES OF ANY KIND.

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MasterPolyheed® 980

Mid-Range Water-Reducing Admixture

Description

MasterPolyheed 980 readyto-use water-reducing admixture is very effective in producing concrete with enhanced finishing characteristics and with different levels of workability. MasterPolyheed 980 admixture meets ASTM C 494/C 494M requirements for Type A water-reducing, and Type F, high-range water-reducing, admixtures.

Applications

Recommended for use in: All concrete applications where superior finishability, workability, and pumpability qualities are desired, in particular, flatwork, pumped concrete, pervious concrete, and harsh concrete mixtures.

Features

True mid-range water reduction (5-15%) and excellent performance across a wide slump range, especially the difficult slump range of 5 to 8 in. (125 to 200 mm)

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- Superior finishability, workability, and pumpability qualities even in concrete mixtures containing low amounts of cementitious materials
- Superior finishing characteristics for residential/commercial flatwork and formed surfaces

Benefits

Significantly reduced placement and finishing time resulting in lower in-place concrete costs

- Higher strength at all ages
- Enhanced concrete durability

Increased service life of concrete structures

Performance Characteristics

Mixture Data: 517 lb/yd³ (307 kg/m³) of Type I cement; slump 6 to 7 in. (150 to 180 mm); 2 to 3% air; concrete temperature 70 °F (21 °C); ambient temperature 70 °F (21 °C).

Setting Time

Mixture	Initial Set (h:min)	Difference over Reference (h:min)
Reference	4:02	-
MasterPolyheed 980 admixture @		······•
5 fl oz/cwt (325 mL/100 kg)	4:38	+0:36
10 fl oz/cwt (650 mL/100 kg)	5:28	+1:26

Compressive Strength, psi (MPa)

Mixture	7-Day	28-Day	
Reference	4650 (32.1)	5610 (38.7)	
MasterPolyheed 980 admixture @			
5 fl oz/cwt (325 mL/100 kg)	5330 (36.7)	6060 (41.8)	
10 fl oz/cwt (650 mL/100 kg)	6280 (43.3)	7400 (51.0)	,

Note: The data shown are based upon controlled laboratory tests. Reasonable variations from the results shown here may be experienced as a result of differences in concrete making materials and jobsite conditions.

page 1 of 3

MasterPolyheed 980

Guidelines for Use

Dosage: MasterPolyheed 980 admixture has a recommended dosage range of 2 to 12 fl oz/cwt (130 to 780 mL/100 kg) of cementitious materials for most concrete mixtures. As the dosage of MasterPolyheed 980 admixture increases to 12 fl oz/cwt (780 mL/100 kg) of cementitious materials, normal concrete setting characteristics are maintained, and early and ultimate compressive strengths increase. Because of variations in concrete materials, job site conditions, and/or applications, dosages outside of the recommended range may be required. Consult your local sales representative for assistance in determining the dosage for optimum performance.

Product Notes

Corrosivity-Non-Chloride, Non-Corrosive: MasterPolyheed 980 admixture will neither initiate nor promote corrosion of reinforcing or prestressing steel embedded in concrete, or of galvanized steel floor and roof systems. Neither calcium chloride nor other chloride-based ingredients are used in the manufacture of MasterPolyheed 980 admixture.

Compatibility: MasterPolyheed 980 admixture is compatible with most admixtures used in the production of quality concrete, including normal, mid- and high-range water reducers, accelerators, retarders, extended-set control admixtures, air entrainers, corrosion inhibitors, and shrinkage reducers. Do not use MasterPolyheed 980 admixture with admixtures containing beta-naphthalene sulfonate. Erratic behaviors in slump, workability retention and pumpability may be experienced.

Storage and Handling

Shelf Life: MasterPolyheed 980 admixture has a minimum shelf life of 18 months. Depending on storage conditions, the shelf life may be greater than stated. Please contact your local sales representative regarding suitability for use and dosage recommendations if the shelf life of MasterPolyheed 980 admixture has been exceeded.

Packaging

MasterPolyheed 980 admixture is supplied in 3 gal (11 L) pails, 55 gal (208 L) drums, 275 gal (1040 L) totes and by bulk delivery.

Related Documents

Safety Data Sheets: MasterPolyheed 980 admixture

Additional Information

For additional information on MasterPolyheed 980 admixture or its use in developing concrete mixtures with special performance characteristics, contact your local sales representative.

The Admixture Systems business of BASF's Construction Chemicals division is the leading provider of solutions that improve placement, pumping, finishing, appearance and performance characteristics of specialty concrete used in the ready-mixed, precast, manufactured concrete products, underground construction and paving markets. For over 100 years we have offered reliable products and innovative technologies, and through the Master Builders Solutions brand, we are connected globally with experts from many fields to provide sustainable solutions for the construction industry.

Limited Warranty Notice

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Satisfactory results depend not only on quality products but also upon many factors beyond our control. BASF MAKES NO OTHER WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ITS PRODUCTS. The sole and exclusive remedy of Purchaser for any claim concerning this product, including but not limited to, claims alleging breach of warranty, negligence, strict liability or otherwise, is shipment to purchaser of product equal to the amount of product that fails to meet this warranty or refund of the original purchase price of product that fails to meet this warranty, at the sole option of BASF. Any claims concerning this product must be received in writing within one (1) year from the date of shipment and any claims not presented within that period are waived by Purchaser. BASF WILL NOT BE RESPONSIBLE FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFITS) OR PUNITIVE DAMAGES OF ANY KIND.

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BASF Corporation Admixture Systems

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MasterPolyheed 980

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Technical Data Sheet

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APPENDIX E PROPOSED TEMPORARY LOCATION

PLANT LOCATION

The first location we intend to move the plant is for Manitoba Infrastructure. The project is 7057 – Intersection Improvements – PTH 75 at PR 243. We are sub contracted for concrete supply under Maple leaf Construction Ltd.

We plan to operate the plant from between approximately June 2020 to September 2020.

The property we plan to use is at the South-East corner of PTH 75 and the old alignment on PR 200, with access off of $5^{\rm th}$ street west in Emerson, Manitoba.

Manitoba Infrastructure owns the property

The property is a paved parking lot, near the highway right of way. The general land use in the area is for agricultural, with some commercial, and minimal residential.





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MANITOBA HEAVY CONSTRUCTION ASSOCIATION

Best Environmental and Safety Management Practice

APPENDIX F MHCA BEST PRACTICES

Redi-Mix Concrete Facilities



BEST ENVIRONMENTAL MANAGEMENT PRACTICE

Manitoba Heavy Construction Association

Best Management Practice

REDI-MIX CONCRETE PLANTS

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Note:

This Best Management Practice (BMP) and all supporting materials are only a guideline and supplement to the interpretation of existing legislation and industry practices. It is designed and intended to help and assist members of the heavy construction industry in developing and implementing their own environmental management system. This BMP is <u>not</u> legislation, is <u>not</u> intended to replace any legislation and does <u>not</u> guarantee establishing a successful "due diligence" defense in the event of legal action. This BMP and all supporting materials are <u>not</u> to be reproduced without written permission from the Manitoba Heavy Construction Association. No warranty is made with regard to this BMP and its contents, and all supporting materials and their contents.

The material in this BMP may be incorporated into the working knowledge of the reader but its use should be subjected to the particular circumstances of each user.

ACKNOWLEDGEMENTS

This document has been a joint effort between members of the Manitoba Heavy Construction Association (MHCA) and the Manitoba Redi-Mix Association. Having all stakeholders involved in its development has been beneficial. The MHCA would like to acknowledge all who were involved in the development of the document. The document will be distributed to and used for training of, the redi-mix industry throughout Manitoba.





2

1. INTRODUCTION

1.1. Purpose

The Best Management Practices (BMP) was developed to assist owner(s) and operators of Redi-Mix Concrete Facilities to adopt best practices in order to improve the environment, protect human health and safety, and reduce potential risks and economic liabilities at their work site.

This document outlines recommended operational practices that will minimize the impact of Redi-Mix concrete plants on the environment and promote safety at the workplace. The document can be used for new facilities or for upgrading existing facilities.

BMP is intended to identify best management practices as a supplement to the requirements of existing legislation. BMP is <u>NOT</u> intended to create or replace any legislation, industry standards, code or guidelines. BMP does <u>not</u> guarantee a successful "due diligence" defense in the event of legal action. Although reference is made in BMP to provincial statutes and regulations, where federal legislation is applicable (such as on First Nation Lands, or National Park Lands) such legislation shall also be complied with. As well, municipal by-laws and other industry standards and codes should be observed.

This document was developed in April 2000. The document will be reviewed every three (3) years to ensure the information is up to date, relevant to the industry, and reflects changes in industry practices and legislation.

1.2. Background

In the overall context of industrial facilities, Redi-Mix concrete plants do not generally pose a significant problem in terms of environmental impact. The usual ingredients that are combined to produce concrete as outlined by the Canadian Portland Cement Association in 1990, as follows:

≻	Course aggregate	48% by weight	31-51% by volume
\succ	Fine aggregate	31%	24-48%
\succ	Portland cement	13%	7-15%
≻	Water	8%	14-18%
۶	Admixture chemicals (control	<0.01%	N/A
	Characteristics such as air		
	Entrainment, water/cement		
	Ration, initial set, and		
	Compressive strength)		
≻	Air	N/A	4-8%

These ingredients are mixed, with no heat involved (except steam for aggregate heating in late season), in an overhead silo and drum. The mix is then deposited into a mixer truck for

transport to a job site. Alternatively, concrete production can be mixed directly in the mixer truck and transported to a job site.

Emissions, as a result of this mixing operation are limited, but may include dust particles from aggregate piles or in the mixing process become airborne in the drum or silo, and noise. Surface drainage, and wastewater and solid waste management can pose site management issues at Redi-Mix concrete facilities.

2. GENERAL - Compliance with the Law

- Take all reasonable steps to identify all applicable laws, including legislation, regulations, municipal by-laws and codes. Comply with all aspects of applicable laws.
- Obtain all proper and applicable licenses, permits and Certificate of Approvals for site operations.

3. PERMANENT PLANTS (see Appendix A for Definition)

- The owner/operator shall make efforts to minimize noise nuisance created as a result of the operation.
- Spent bag house filters should be disposed of in an environmentally friendly manner.
- To every extent possible, the owner/operator should practice the best environmental practices listed under Sections 5.1, 6.0, and 7.0 at the permanent plant.
- All environmentally related activities should be recorded.

4. PORTABLE PLANTS (see Appendix A for Definition)

- Siting of portable plants should be, to every extent possible, reviewed and sited at an early stage in connection with the local Municipal Authority and Manitoba Conservation Environment Officer.
- The owner/operator should consult with adjacent landowners.
- All environmentally related incidents should be recorded.
- To every extent possible, the owner/operator should practice the best environmental practices listed under Sections 5.1, 6.0, and 7.0 at the portable plant.
- After removal of the portable plant from a property, leave the site in a neat and clean condition; sites should be left in an aesthetically acceptable condition.



5. SITE MANAGEMENT

5.1. General Site Management

- Plastic concrete is toxic to fish (e.g. reducing the BOD) and therefore must not enter watercourses. Efforts to ensure catchment of wet concrete must be implemented on-site (e.g. a drop sheet).
- Where practical and appropriate, mitigation measures should be implemented to protect fine aggregate stockpiles from wind erosion.
- In an urban or highly populated setting, dust suppressants should be used on internal plant roads to minimize dust carrying off the site. Water is an example of an environmentally friendly dust suppressant.
- Runoff from the concrete plant site should be minimized to prevent contamination.
- Use good housekeeping practices to clean up spills of cement and concrete as soon as possible.
- It is recommended that incidents occurring at the concrete plant be recorded.
- Staff involved in concrete production should be made aware of this BEMP.

5.2. Site Water Management

A reduction in water usage could be achieved by the following options:

- Monitoring/auditing of water usage;
- Use water reducing admixtures which reduce the amount of given water in the batch concrete;
- Capture and reuse wash water;
- Restrict freshwater uses to truck exterior wash off, hot water production and batch water for high quality concrete;
- Install flow controls on freshwater sources, where practical;
- · Recycle water, where practical; and
- Train employees to minimize water use and on water conservation practices.

BEST ENVIRONMENTAL MANAGEMENT PRACTICE

- Conduct chemical washing of trucks in a safe manner (appropriate PPE).
- The resultant wash, which is generally neutralized, should be disposed of using a safe and environmental practice.
- Use a sloped settling pond for washout, where practical.
- Where necessary and practical, containment of wastewater and surface runoff is recommended.

5.3. Site Air Management

To improve air quality at Redi-Mix facilities, one can follow such examples:

- Install effective dust removal devices such as bag houses on vents from pneumatic or mechanical transfer systems;
- · Use curtains or socks for truck loading operations;
- Minimize surface areas of aggregate storage piles;
- Locate aggregate storage piles in area sheltered from wind, where practical;
- Pave high vehicle traffic areas and use dust control, where practical;
- · Reduce speed limits;
- Routine sweeping of paved portions of yard to remove accumulated dust; and
- For aesthetic and environmental purposes, one should consider planting vegetation (i.e. trees) around the site.

6. MATERIALS MANAGEMENT

6.1. Pollution Prevention: General

 The owner/operator should implement a high standard of equipment and maintenance, and good housekeeping and operational practices, at all times.

6.2. Chemical and Fuel Management

• Proper storage of lead batteries, solvents and waste oil for recycling.



BEST ENVIRONMENTAL MANAGEMENT PRACTICE

- Ensure containment at fuel and chemical handling areas is sufficient.
- Install proper WHMIS signage to identify contents of bulk tanks.
- Facility operators should be familiar with appropriate sections of the Manitoba Environment Act and any other applicable guidelines, codes and local land use permits with regards to handling and storage of fuels.
- The Owner/Operator shall obtain all necessary permits from Manitoba Conservation for the handling and storage of fuel products and shall keep copies available for reference.
- Take adequate precautions to ensure that diesel fuel, oil, grease and other transportable material do not enter surface and groundwater courses. For example:
 - Fuels, lubricants and other potentially hazardous materials as defined in the <u>Manitoba</u> <u>Dangerous Goods Handling and Transportation Act</u> shall be stored and handled within the designated storage area(s).
 - > The Owner/Operator should ensure that all equipment is maintained such that it poses a minimum risk to the environment.
 - The Owner/Operator should ensure that all fuel storage containers are inspected, for leaks and spillage of hazardous fluids, (such as oil) on a regular basis, and repairs carried out immediately.
 - When servicing requires the drainage or pumping of fuels, lubricating oils or other fluids from equipment, suitable spill response equipment (such as spill trays and spill kits) should be available to catch the fluid, contain, and collect small spills.

7. WASTE MANAGEMENT

7.1. Non-Hazardous Waste

- The Owner/Operator when necessary should undertake site clean-ups, with all resulting debris deposited at a Waste Disposal Ground operating under the authority of Manitoba Regulation 150/91. Exceptions are liquid industrial and hazardous wastes, which require special disposal methods.
- Indiscriminate dumping or littering shall not take place.
- No burning or burying of wastes at the concrete plant sites (both permanent and portable) shall be allowed unless approved by appropriate authorities.
- Reuse returned concrete for other purposes, where practical.

BEST ENVIRONMENTAL MANAGEMENT PRACTICE

- Incorporate returned concrete in succeeding batches where operational and quality constraints allow.
- Wherever possible sludge should be recycled for other purposes, where practical.
- When disposing of all other solid waste, i.e. paper, wood, metals refuse. etc. that it may be carried out with consideration for reuse & recycle.

7.2. Hazardous Waste

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- Dangerous goods/hazardous waste is identified by, and shall be handled according to the Manitoba Dangerous Goods Handling and Transportation Act and associated Regulations.
- The Owner/Operator shall have on site staff that is trained and/or knowledgeable in the handling and transportation of dangerous/hazardous goods, when said dangerous goods/hazardous wastes are being utilized.
- Used oils shall not be used for dust suppression unless approved by appropriate authorities
- Used oils shall be stored in appropriate drums, or tanks with signage until shipped to used oil recycling centres, incinerators, or disposal facilities approved for such wastes.
- Used oil filters shall be drained, placed in suitable storage containers, and disposed of in an appropriate manner.

8. EMERGENCY RESPONSE

- The Owner/Operator should ensure that there is an Emergency Management Plan in place, and that it has been communicated to all employees.
- The Owner/Operator should designate an on-site Emergency Response Coordinator (ERC) for the project. The ERC shall have the necessary training, authority, and responsibility to redirect manpower in order to respond to an emergency. The Emergency Response Coordinator (ERC) shall be familiar with the Emergency Management Plan, and have on site a list of telephone numbers to call in the event of an emergency, and a map to the closest hospital including at least Manitoba Conservation, Environment Canada, emergency company contacts, and the local fire and police departments.
- The Owner/Operator shall report and document all environmental accidents involving contaminants (as defined in Appendix B) to Manitoba Conservation, immediately after occurrence of the environmental incident, by calling the 24-hour emergency phone number, in accordance with <u>Manitoba Regulation 439/87</u>.



- In general, the following actions shall be taken by the first person(s) arriving at the scene (first responder) of a spilled dangerous good/hazardous waste:
- 1. Secure area and ensure safety;
- 2. Assess the situation/risks and identify spilled material;
- Respond (e.g. get help, eliminate source of ignition, contain, block sewers etc.), if it is safe to do so.
- 4. Notify, verbally, the appropriate government agency immediately. Follow up with a written document (fax).
- 5. Manage spilled material, if it is safe to do so.
- When dangerous goods are used on site, materials for containment and cleanup of spill material (e.g. spill kit) should be available on site.
- Minor spills of such substances, less than reportable quantities shown in Appendix B, which may be contained on land with no significant impact on human health or the environment, may be responded to with in-house resources without formal notification of Manitoba Conservation.

9. Safety

- Each new worker should be given a plant orientation before they start work, which should include a tour of the plant and how it operates, where to find a telephone, emergency first aid kit, fire extinguisher who to report to and where to evacuate to, where the MSDS's are kept and the hazards at the plant.
- Always communicate with the plant operator, especially when you are doing any maintenance at the plant.
- Good housekeeping in the yard and plant will go a long way to preventing trips and falls.
- Each worker should know about the chemicals on site and the proper PPE to wear and where the PPE is kept.
- At a concrete plant, dust masks need to be with you at all times.
- Falling objects are a hazard at concrete plants therefore; Hardhats and steel-toed boots are required.
- Watch for traffic in a concrete yard and give right of way to all vehicles and be sure to make eye contact with the drivers before crossing their path.
- Wear the right PPE and read the MSDS when acid washing a truck and always work with your back to the wind.

BEST ENVIRONMENTAL MANAGEMENT PRACTICE

- Never pour water into acid dispense the acid into the water.
- Always use proper lifting procedure; Bend your knees, get under the load and lift with your legs.
- When cleaning a mixer drum in a redi-mix truck, use full confined space entry procedures and plan your work. And wear all necessary PPE at a minimum; this is eye protection, steel toed boots, gloves and hearing protection.
- Always have an entry watch person when cleaning the in side of a mixer drum. Both persons need to have confined space entry training.
- All pinch points within reach should be guarded and wear all PPE and clothing nice and snug
- Always use the 3-point contact method to mount and dismount a truck cab.
- Concrete is caustic avoid direct contact by using the appropriate PPE.

BEST ENVIRONMENTAL MANAGEMENT PRACTICE



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APPENDIX A: GLOSSARY OF TERMS

The following Glossary of Terms apply to the Redi-Mix Concrete Facilities BEMP:

<u>Aggregate:</u> granular materials, such as sand, gravel, crushed stone, crushed hydrauliccement concrete, or iron-blast finance slag, used with a hydraulic cementing medium to produce concrete or mortar.

Batch: quantity of either concrete or mortar mixed at one time.

<u>Biological Oxygen Demand:</u> the amount of oxygen required by bacteria while stabilizing decomposable organic matter under aerobic conditions.

<u>Calcium Chloride:</u> a crystalline solid, CaCl₂: in various technical grades, used as a drying agent, as an accelerator of concrete, a de-icing chemical, and for other purposes.

<u>Cement, Bulk:</u> cement that is transported and delivered in bulk (usually in specially constructed vehicles) instead of in bags.

<u>Concrete:</u> a composite material that consists essentially of a binding medium within which are embedded particles or fragments of aggregate, usually a combination of fine aggregate or coarse aggregate; in Portland cement concrete, the binder is a mixture of Portland cement and water.

<u>Decibel:</u> a comparative unit that measures the intensity of sound. It is the term to identify 10 times the common logarithm or the ration of two like quantities proportional to power or energy.

<u>De-Scaling Agent:</u> chemicals used in water to prevent scale from forming on pipes and tanks/vessels. Bromine is a common de-scaling agent.

<u>De-Watering:</u> refers to a process used in detention/retention facilities, whereby water is completely discharged or drawn down to a pre-established pool elevation by way of a perforated pipe. De-watering allows the facility to recover its design storage capacity in a relatively short time after a storm event.

<u>Dust Suppressant</u>: an example is water. Other materials can be applied without prior approval from a given jurisdiction.

Effluent: flowing forth or out.

Emission Source: from concrete plants includes: 1) diluted sources which are ducted to the atmosphere through a stack. 2) Fugitive emission emitted directly to the atmosphere from open sources i.e. from yard dust, loader and mixer travel, handling aggregate, wind erosion, etc.

<u>Mechanical Reclaimer:</u> any equipment that mechanically separate components of plastic concrete allowing the reuse of the individual components where operational and quality constraints allow.

<u>Mixing, Water:</u> the water is freshly mixed sand-cement grout, mortar, or concrete, exclusive of any previously absorbed by the aggregate.

Noise: unwanted or undesirable sound; sounds which create detrimental effects.

<u>Opacity:</u> means the degree to which an emission reduces the passage of light (obscures the view of an object in the background) expressed numerically from 0% (transparent) to 100% (opaque).

<u>Permanent Plant:</u> a permanent batch plant is one that remains in one location for more than 1 year.

<u>Portable Plant:</u> capable of being moved from one job site to another and sited for less than 365 days in a single location. A portable plant is where the aggregate batching and weighing system is contained on a unitized chassis wholly capable of being towed down a road to a remote job site. This chassis may or may not include the cement-weighing portion of the process. Sometimes, depending on the silo size, the cement silo is a separate entity. Portable plant can also include a mobile mixer.

<u>Sludge:</u> any thick, semi-fluid mass, usually a sediment or filtered waste product, muddy or slushy sediment.

Slurry: thin mixture of water and any several fine, insoluble materials.

<u>Stormwater Treatment:</u> detention, retention, filtering or infiltration of a given volume of stormwater to remove urban pollutants and reduce frequent flooding.

<u>Truck Mixer:</u> a concrete mixer suitable for mounting on a truck chassis and capable of mixing concrete in transit.



BEST ENVIRONMENTAL MANAGEMENT PRACTICE

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APPENDIX B: REPORTABLE QUANTITIES

CLASSIFICATION	HAZARD	REPORTABLE QUANTITY OR LEVEL
1	Explosives	All
2.1	Compressed Gas (Flammable)	100 L*
2.2	Compressed Gas	100 L*
2.3	Compressed Gas (Toxic)	All
2.4	Compressed Gas (Corrosive)	All
3	Flammable Liquids	100 L
4	Flammable Solids	1 Kg
5.1 Packing Groups I & II	Oxidizer	1 Kg or 1 L
Packing Group III	Oxidizer	50 Kg or 50 L
5.2	Organic Peroxide	1 Kg or 1 L
6.1 Packing Group I	Acute Toxic	1 Kg or 1 L
Packing Groups II & III	Acute Toxic	5 Kg or 5 L
6.2	Infectious	All
7	Radioactive	Any discharge or radiation level exceeding 10 mSv/h at the package surface and 200 uSv/h at 1 m from the package surface
8	Corrosive	5 Kg or 5 L
9.1	Miscellaneous (except PCB mixtures)	50 Kg
9.1	PCB Mixtures	500 grams
9.2	Aquatic Toxic	1 Kg or 1 L
9.3	Wastes (Chronic Toxic)	5 Kg or 5 L

* Note: To be amended to other materials in the near future.

Source: Manitoba <u>Dangerous Goods Handling and Transportation Act</u>, Regulation 439/87: Environmental Accident Reporting Regulation.



Manitoba Ready Mix Concrete Association

Ready Mix Concrete Production Facilities Audit Check List (Approved February 04, 2011)

Company		
Contact		
Phone	Fax	Email
Mailing Address		
Plant Location		
Auditor		
Audit Date		
Expiry Date		



Manitoba Ready Mix Concrete Association

1 Manitoba Ready Mix Concrete Association

APPENDIX G

CONCRETE MANITOBA AUDIT FORM



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Appendix A Scale Check Data Form

2 Manitoba Ready Mix Concrete Association Foreword

MRMCA Certification Policies

The Manitoba Ready Mix Concrete Association (MRMCA), the representative organization of ready mix concrete producers in Manitoba, provides industry representation for the advancement of quality concrete in the province of Manitoba while striving towards the following goals:

- Market and promote the use of quality concrete
- Provide a consolidated industry approach to regulatory bodies
- Provide networking opportunities
- Provide education and training
- Promote best environmental and safety management practises

As a member of the Canadian Ready Mix Concrete Association, the MRMCA performs several important functions for its members, one being the certification of production plants. This Audit Check List outlines technical information about ready mix concrete plant facilities to assist producer members in building and maintaining plant equipment to the highest possible level of efficiency and safety.

In order for MRMCA producer members to provide assurance to their customers that a given production plant does have the capability of producing quality concrete by virtue of good equipment in proper operating condition, the MRMCA issues a Certificate of Conformance following a detailed audit of the plant's equipment as outlined in this Guide.

This publication sets out the detailed requirements for plant certification. This plant certification program does not address or document the quality of the concrete produced by a member company's plant. It provides an MRMCA member company with the means of obtaining a Certificate indicating that a plant, because of the nature and condition of its equipment, has the proper capability of producing quality concrete.

Certification is mandatory for all Producer Members of the MRMCA. For a company to be a Producer Member of the MRMCA, all of its concrete plants and equipment must conform to this guideline and have a current Certificate of Conformance as issued by the MRMCA. To be eligible for a Certificate of Conformance, the plant must be inspected by, or have the inspection supervised by, a professional engineer registered to practice within the Province of Manitoba and approved by the MRMCA, for conformance with the Check List requirements contained herein.



The cost for a certification application is based on a flat fee as determined by the Association and may change without notice at the beginning of a new calendar year. The flat fee comprises all administrative costs and plant audit. This fee is fixed and does not change regardless of location of the applicant within the province of Manitoba. However if the initial plant inspection visit reveals deficiencies, the producer member shall have the opportunity to provide documented proof that the deficiencies have been corrected to avoid a second visit. Until proof is submitted, certification is withheld. If a second visit is required, then mileage will be assessed at \$0.52/km plus all other expenses and the rate of \$75/hour will be assessed. All deficiencies are to be completed in 30 days from the initial visit.

In addition to carrying the signature and seal of the MRMCA's inspecting engineer, the Certificate must be signed by the principal company executive attesting to his/her intention of seeing that all equipment is maintained within the requirements of the Check List.

It should be noted in this connection that the inspecting engineer, in signing the Certificate, stakes his professional reputation on the evaluation having been objective and thorough. In addition, the engineer accepts his/her ethical and legal responsibilities not to disclose any information concerning the lawful business affairs or technical processes of Members.

At any time, the MRMCA reserves the right to perform a spot inspection to compare plant attributes with the most recent inspection Check List to satisfy itself that the Certificate provides a valid evidence of productive capability. The same prerogative exists with regard to the company's official pledge to maintain the equipment properly.

Currently Certification applications must be received at the Association on or before May 31st of each year. The Certification Committee will review these applications by mid June and make recommendations on each application to the Board of Directors.

The MRMCA allows for expedited Plant Certification upon request by the applicant company. The expedited process will take 2 weeks from receipt of a properly completed certification application. A non-refundable fee set by the Board of Directors must accompany the application for the expedited plant certification process. The non-refundable fee does not guarantee that the applicant's certification will be granted, but only that the application will be reviewed on a timely basis to determine its merits. Copies of this booklet are available without charge from the MRMCA or may be downloaded in PDF format from www.mrmca.com.

DISCLAIMER

The *Plant Certification Audit and Checklist* is intended to be used by the Manitoba Ready Mix Concrete Association (MRMCA) for the purpose of an on-site audit by a professional engineer prior to issuance of the Certificate.

Neither the MRMCA, its employees, board members or agents have made or hereby purport to make any representations, warranties, or covenants with respect to the specifications or information contained in this Check List or the results generated by their use, nor will they be liable for any damage, loss or claims, including those of an incidental or consequential nature, arising out of these protocols.

These protocols are not in any way intended to supersede or detract from any requirements contained in municipal, provincial or federal laws, regulations or legislation.

APPROVED QUALITY PROGRAM

The Manitoba Ready Mix Concrete Association (MRMCA) assists the provincial concrete industry by providing a Plant Certification program designed to assure owners and others that each Certified Production facility meets industry standards. Plant Certification is a mandatory requirement of all MRMCA producer member companies.

Each production facility is audited by a qualified professional engineer in order to ensure that the plant, equipment, material handling and delivery/mixer trucks have met the minimum prescribed qualifications and that the proper capability of producing quality concrete exists as per current edition of Canadian Standards Association (CSA) A23.1– Concrete Materials and Methods of Concrete Construction.

AUDIT and CHECK LIST

MRMCA offers this "Audit and Check List" prepared under the direction of the Association's Technical Committee.

Under the Terms and Conditions of this Certification, all concrete production facilities of the producer member must at all times qualify for and hold a *Certificate of Ready Mix / Mobile Mix Concrete Production Facilities*. It is also a condition that the producer member allows MRMCA to conduct audits of the plant by an MRMCA appointed auditor at any time.

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The "Certificate of Concrete Production Facilities" (hereafter referred to as the "Certificate") is widely recognized by municipal, provincial and private specifying agencies. It is extensively used as a basis of concrete supplier pre-qualification as the supplier has demonstrated the ability to produce concrete in a manner consistent with this Audit and Check List.

INSTRUCTIONS for AUDIT and CHECK LIST

1 GENERAL

This section provides guidance to ready mixed concrete producers in qualifying their plants for the *Audit and Check List*. It is also intended to assist the examining Auditor in performing the plant inspection accurately. The Producer's plant staff should assist the Auditor to expedite the inspections and to correct any deficiencies in plant installations or operations. The plant must be operating in order to complete the Audit.

In order to apply for or retain the plant certification, a ready mixed concrete producer will be supplied with a copy of this *Audit and Check List* for each plant to be inspected. The completed original document will be retained on file at the administrator's (MRMCA) office.

A qualified registered Professional Engineer in the Province of Manitoba, here after known as "The Auditor", appointed by MRMCA will inspect, or supervise the inspection of, all facilities covered by the *Audit and Check List* and attach his/her seal to the completed form.

A *Certificate* will be issued by the administrator (MRMCA) upon receipt of a properly executed *Audit and Check List* indication that the Audit requirements have been accepted, provided that all other conditions of certification have been met.

The Audit and Check List itemizes requirements for plant facilities and equipment used in the production of ready mix concrete. Each item is to be checked by the Auditor, meeting the requirements listed above who will in each case enter the appropriate symbol in the space provided as follows:

- a. "P" If the requirement passes
- b. **"F"** if the requirement fails
- c. "NA" If the requirement is not applicable to the type of plant being inspected

The Auditor will examine every item on the *Audit and Check List* for conformance and indicate the appropriate symbol in the space provided. A Certificate cannot be issued to a plant that does not meet all applicable items in the *Audit and Check List*.

6 Manitoba Ready Mix Concrete Association Once the Auditor has completed the *Audit and Check List*, he/she must initial the bottom right corner of every page of the booklet to confirm that all applicable sections have been reviewed and that the information is correct.

To validate the Owner's Conformance Agreement, the producer company executive must sign the agreement, attesting that he/she will maintain the facilities in compliance with the Audit requirements at all times. MRMCA also retains the right to conduct random inspections of concrete production facilities and to conduct inspections of specific facilities in response to complaints received. Failure to allow for these inspections to take place shall result in a loss of the concrete producer's *Certificate and membership*.

2 PORTABLE PLANTS

Procedures for evaluation of portable plants shall follow the same criteria as permanent plants, with emphasis on:

Clause 1.2.1 Aggregates storage arranged to assure that each aggregate as removed is clean, distinct and not intermingled with others.

Clause 2.0 Plant scales shall be calibrated in accordance with CSA A23.1. A valid scale test report must be submitted to the Auditor prior to the issuance of the Certificate of Certification. The scales shall be rechecked whenever the plant is moved to a new location or whenever alterations or additions are made to the plant that might affect the weighing accuracy of the scales.

Clause 4.2 (if applicable) The truck fleet intended for use with the portable plant shall be inspected and listed by number or designation in "Summary of Fleet Condition" as Pass or Fail with explanation.

The Certificate shall be valid for a period of three (3) years. However, the certification is site specific. Should the portable plant be relocated, the certificate is voided and recertification is required. It is imperative that upon application for certification using this *Audit and Check List*, the batch plant site be clearly stated by street address, lot number, or rural Section-Township-Range.

The Association shall apply a surcharge for the timely inspection of portable plants over and above the standard application fee as deemed reasonable to the situation.

3 TERMS and CONDITIONS

 Conformance Agreements: Conformance with the requirements of the Audit and Check List must be assured. The completion of the Auditor's Conformance Agreement, validated by the signature and seal of the inspecting Auditor and the completion of the Owner's Conformance



Agreement validated by the signature of the signing authority of the Owner will make the plant eligible for a "*Certificate*".

- 2. All producing plants belonging to the Producer Member shall be certified.
- 3. Certification:
 - The successfully completed Audit shall be valid for a period of three (3) years and shall expire on December 31st of the third year
 - b. The Certificate becomes invalid upon ownership change of the plant
 - c. The Certificate may be revoked at the sole discretion of MRMCA for non-compliance
 - d. All current documentation shall be available for inspection.

Non-conformance with these requirements can result in loss of Certification of the concrete production facility. Re-application is subject to the terms and conditions of the MRMCA plant certification requirements.

REFERENCES (Reference is made only to items not considered self-explanatory):

- 1. CSA-A23.1 Concrete Materials and Methods of Concrete Construction (2009) and CSA-A23.2 Methods of Test for Concrete (current) published in one volume by the Canadian Standards Association
- Concrete Plant Standards (Metric), Twelfth Revision, November 2000. Concrete Plant Manufacturers Bureau, 900 Spring Street, Silver Spring, Maryland 20910, USA
 Truck Miker, Agitator and Front Discharge Standards, TMMB-100-05, 2005 Printing. Truck Mixer Manufacturers
- Bureau, 900 Spring Street, Silver Spring, Maryland 20910, USA
- Certification of Ready Mixed Concrete Production Facilities; January 2006; National Ready Mixed Concrete Association, 900 Spring Street, Silver Spring, Maryland, USA 20910

CHECK LIST FOR READY MIX CONCRETE PRODUCTION FACILITIES

1.0 RAW MATERIALS

- 1.1 Cementitious Materials
 - .1 Bins or silos are tight and with free movement to discharge opening []
 - .2 Separate storage is provided for different types of cementing materials to prevent contamination common bag houses should shake down into the least affected cementing material []
 - .3 Intra-plant handling prevents contamination []
 - .4 All cementitious feed pipes are marked and designated (e.g. GU, HS, Fly Ash, etc)[]

1.2 Aggregates

- .1 Aggregates stockpiles are arranged to assure that each aggregate as removed is clean, distinct and not intermingled with others
- .2 Procedures for unloading and storing aggregates prevents harmful segregation []
- .3 Intra-plant handling and transportation prevents harmful segregation []
- .4 Separate storage bins or compartments for each size and type of aggregate are properly constructed and charged to prevent mixing of different sizes and types []

1.3 Water

- .1 Adequate supply with pressures sufficiently constant or regulated to prevent interference with accuracy of measurement where flow meters are used to measure mixing water – the flow meter shall be calibrated and documented at intervals of no more than six months []
- .2 The concrete producer must provide certification that the water used meets the requirements of CSA A23.1 at all times. Water for concrete production may be from one of the following sources:

Potable source (water is supplied by a government/commercial agency) []

Non-potable source (satisfactory history of strength and durabi the water has been demonstrated)	lity made with []
Water from concrete production operations	[]

1.4 Admixtures

.1 Storage of liquid admixtures is provided to prevent damage by freezing or contamination []

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.2 Agitation is provided for liquid admixtures that are not stable solutions

[]

.3 Each admixture shall be measured and discharged separately []

1.5 Materials for Winter Production

.1 For winter concrete production, plant heating facilities for water and/or aggregates are provided to ensure that concrete temperatures conform to CSA A23.1 []

2.0 Scales

The Auditor will only accept mechanical inspection and calibrations as performed by a qualified technician employed by an authorized Scale Manufacturer or Scale Company. The Scale Manufacturer or Scale Company has the responsibility to ensure the mechanics are in good working order as per industry standards and calibration tolerances are met for each scale. Acceptance will be based on the MRMCA Scale Check Data Form (Appendix A), completed and signed by a technician of the Scale manufacturer or Scale Company.

Scales must be checked and calibrated in accordance with CSA A23.1, or whenever alterations are made to the Plant that may affect the weighing accuracy of the scales or whenever the plant is moved.

General Information

- a. Each scale is comprised of a suitable system of lever and/or load cells, which will weigh consistently within the tolerance specified in the MRMCA Scale Check Data Form (Appendix A), with loads indicated either by a beam with a balance indicator or a full reading dial or digital readout display verifying accuracy.
- b. Each scale must be calibrated at a minimum of 2 points and at 20% and 80% of the scales normal operating capacity.
- c. The Scale Manufacturer or Scale Company must supply the necessary documentation that government approved test weights are used, which are certified and traceable.
- d. The Scale Manufacturer or Scale Company must provide a procedure or check list which is used for the inspection and to document all mechanical checks, calibration test results and any deficiencies in the scale or weighing system.
- e. The Scale Manufacturer or Scale Company's qualified technician must sign the MRMCA Scale Check Data Form certifying that all requirements have been met.
- f. All scale check and calibration reports/records must be kept on site and must be available for inspection at all times.

The MRMCA Scale Check Data Form is signed and certified by a qualified technician employed by a Scale Manufacturer or Scale Company. []

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3.0 BATCHING EQUIPMENT

3.1 General

The plant is described as follows:

Α.	Permanent	[]	B. F	ortable+ ID#	[]
А.	Permanent		В. н	'ortable+ ID#	

3.2 Batching Method

Batch	Truck Mixer			[]
Batch	Stationary Mixer	>	Truck Mixer	[]
Batch	Stationary Mixer		Agitating Unit	[]
Batch	Stationary Mixer	>	Non-Agitating Unit	[]
Portable Cement Sil	0			[]

3.3 Requirements

.1	Batchers for weighing materials consist of suitable containers freely suspended from a scale system and equipped with the necessary charging and discharging mechanisms. Batchers shall be inspected to ensure they are freely suspended before and after loading.	[]
.2	Cementing materials are weighed on a scale and in a hopper separately from other ingredients. Portland cement shall be batched prior to the batching of any supplementary materials.	[]
.3	Batchers are capable of receiving rated load without contact of the weighed material with the charging mechanism.	[]
.4	Cement material batchers are equipped with dust seals between charging mechanism and hopper, installed in such a way that weighing accuracy will not be affected; cementing materials weigh hopper vented to permit air escape, hopper is free from build-up and self-cleaning to ensure complete discharge.	; []
.5	Batcher charging mechanism is designed, operated and maintained to stop flow of material within the weighing tolerances specified in Section 3.4 and prevents loss of material when closed.	[]
.6	Vibrators and other appurtenances are installed and operated so as not to affect the accuracy of weighing.	[]
.7	The entire weigh batching system and equipment are protected against weather conditions.	[]
	11	



.8	Each admixture dispenser is capable of measurement within tolerances	
	indicated in Section 3.4. Each admixture shall be measured separately.	[]

3.4 Accuracy of Plant Batching

Other than SCM's, the quantity of material batched shall be between 30% and 100% of the scale capacity.

.1	Total cementitious material measured by mass within ± 1 percent of the total desired amount (See item 2 below)	[]
.2	Aggregates measured by mass within ± 2 percent of the desired amount	[]
.3	Water measured by volume or mass within ±1 percent of the desired amount	[]
.4	Powdered admixtures measured by mass and paste, or liquid admixtures by either mass or volume within \pm 3 percent of the desired amount or \pm 30 grams whichever is greater.	[]
NOTE:		

- Moisture compensation devices are not mandatory for this Audit; however the MRMCA recognizes the need for aggregate moisture compensation when producing concrete of consistent quality.
- CSA A23.1 Table 24 indicates that for small quantities of concrete (30% or less of the scale capacity) the batching tolerance for cement and SCM's is increased to 4% of the required quantity.

- 3.5 Batching Systems Definitions and Components
- .1 MANUAL BATCHER is a system wherein all ingredients are charged, weighed and discharged with gates or valves actuated manually and with the accuracy of the measuring operations dependent upon the operator's visual observation of the scale []
- .2 SEMI –AUTOMATIC BATCHER is a system wherein the weighing of all ingredients is actuated separately by the operator but is terminated automatically when the desired mass has been reached. It is interlocked to assure that the discharge mechanism cannot be activated until the mass is within the tolerance specified in section 3.4 for those ingredients []
- .3 AUTOMATIC BATCHER is a system wherein the entire sequence of measurement of all ingredients actuated by a single operation (i.e. pushing a button or inserting a punch card) and then terminated automatically when the designated mass or volume of the materials has been reached. Interlocking of the automatic controls shall assure that:
 - a. The charging device cannot be actuated until the scale has returned to zero balance within ± 0.3 percent of its capacity []
 - b. The charging device cannot be actuated if the discharge mechanism is open []
 - c. The discharging device cannot be actuated if the charging mechanism is open []
 - d. The discharging device cannot be actuated until the designated weight is within the tolerance specified in Section 3.4. When different kinds of aggregates of different kinds of materials are weighed cumulatively on a single scale, interlocked sequential controls shall be provided for each material. []

3.6 Portable Cement Silos for Separate Material Addition

The portable auxiliary cement silos must meet all of the existing requirements, including:

- .1 Having suitable scale equipment necessary to measure the actual amount of cementing materials placed in each load as per the tolerance requirements of 3.4 []
- .2 Maintain batch records showing actual mass of the cementing materials added to each load of concrete produced []
- .3 Meeting the existing scale calibration requirements including calibration every time the silo is moved []

Silos inspected: (record serial or identification number)

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4.0 MIXERS & TRANSPORTATION EQUIPMENT

4.1 Stationary Mixer

Definition:

Mixers installed at a plant to partially or completely mix all ingredients of the concrete.

.1 The mixer is capable of producing uniform concrete in the mixing time designated by the manufacturer or in the time designated in CSA A23.1. The concrete shall be considered uniform if it meets the requirements of CSA A23.1, "Determination of Within Batch Uniformity". A within batch uniformity test is only mandatory when discharging from a stationary mixer into an agitating or non-agitating unit.

4.2 Truck Mixers

Definition:

Concrete mixers mounted on trucks or other vehicles, used for the complete mixing of concrete ingredients after they have been batched at the plant. Each acceptable truck mixer shall conform to the following requirements:

- .1 Charging and discharge openings and chute in good condition, free from appreciable accumulations of cement or concrete and with hopper and chute surfaces clean and smooth.
- .2 Drum of such size that the rating as a mixer in volume of mixed concrete does not exceed those set by the Truck Mixer Manufacturers Bureau (TMMB). This requirement is met by all mixers carrying a rating plate of the TMMB.
- .3 Provided with a plate (secured on frame or door interior) showing the mixer manufacturer's recommended operating speed for mixing and must have demonstrated the capability to operate satisfactorily at the recommended speed.
- .4 On units equipped to batch mixing water, equipment to be in proper working condition; gauge glasses clean and legibly graduated; water pump or injection system in good working order. Site glasses are not required in freezing weather.
- .5 In the event that the mixer blade wear exceeds 10%, or the mixer design has been significantly altered, the Auditor will consider the mixer satisfactory only when that unit demonstrates compliance with the requirements of CSA A23.1 Table 13, "Determination of Within Batch Uniformity".

4.3 Agitating Units

Definition:

Drums or containers, mounted on trucks or other vehicles, in which completely mixed concrete is kept sufficiently agitated during delivery to prevent segregation. Each acceptable agitating unit shall conform to the following requirements:

.1 Agitating units conform to the requirements for Truck Mixers except drum or container of such size that the rating as an agitator in volume of mixed concrete does not exceed the volumes set by TMMB.

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- .2 Agitating units must be provided with a plate showing the mixer manufacturer's recommended operating speed for agitating.
- .3 Agitating units have the capability to operate at the recommended speed.
- 4.4 Non-Agitating Units

Definition:

Containers, mounted on trucks or other vehicles, for delivering completely mixed concrete, not constructed or equipped to keep the mass of concrete agitated in the container. Each acceptable non-agitating unit shall conform to the following requirements:

- .1 Interior surfaces smooth and watertight, with rounded corners
- .2 Gates or other means provided for the controlled discharge of the concrete
- .3 Interior free from excessive accumulation of hardened concrete and from obstruction or deterioration sufficient to interfere with the proper discharge of the concrete

NOTES:

- 1. The Auditor will evaluate all available truck mixers and agitating units used to deliver concrete from the plant. The evaluation will be based on a study of the records of truck mixer purchase, inspection and maintenance. Units that meet the above requirements will be satisfactory.
- Broker trucks may also be used for concrete mixing and delivery provided each truck used has a valid truck certification sticker, obtained only through the MRMCA.
- 3. New concrete trucks purchased by the concrete producer conforming to the requirements of clauses 4.2 and 4.3 do not require a truck inspection. The concrete producer shall immediately notify the MRMCA of a new truck mixer purchase and shall supply MRMCA with the truck number. The concrete producer's truck records will be updated and a certification sticker will be issued for the truck.
- 4. Used concrete trucks purchased by the concrete producer must conform to the requirements of clause 4 and requires a truck inspection by the Auditor.



4.5 Summary of Fleet Condition

TRUCK ID	M/A	MIXER MANUF.	PASS/ FAIL	COMMENTS		
			-			
Total number of truck mixers (M) available for use						
Total number of agitating units (A) available for use						
Number of units checked and found acceptable						
Number of units checked and found unacceptable						
16						

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5.0 PLANT DOCUMENTATION

5.1	Delivery Ticketing System (must include the following):	
.1	Name of company and plant location if company operates more than one plant	[]
.2	Serial number of ticket	[]
.3	Truck number	[]
.4	Name of purchaser	[]
.5	Specific job designation (name and location)	[]
.6	Specific class or designation (i.e.: Mix ID) of concrete identifiable with terminology	[]
.7	Volume of concrete (cubic meters or cubic yards)	[]
.8	Delivery date	[]
.9	Time when truck was loaded	[]
.10	Time when truck was unloaded	[]
.11	Volume of extra water added in accordance with CSA A23.1	[]
.12	The delivery ticket must carry a cautionary note	[]

5.2 Records

Materials batched shall be recorded for each batch and kept for each plant. The record or log book shall:

.1	Register the quantity of each material batched	[]
.2	Provide for the identity of the batch along with the truck ID in which it was delivered	[]
.3	be properly secured	[]
5.3	Conformance Support Documents	
.1	Scale calibration records – Scale Check Data Form on file	[]



VERIFICATION OF INSPECTION AND APPLICATION FOR CERTIFICATE

The undersigned, a registered Professional Engineer in the province of Manitoba, asserts that an inspection of the ready mix concrete plant described below

(Company Name)

(Plant & Location)

has been conducted and that the information provided on this Audit and Checklist is accurate and complete. Application is hereby made for the issuance of a Certificate for this plant as follows:

General Operations	Batching System	Recording (automatic or manual)	
Transit Mixing	Manual	Cement	
Central Mixing	Semi-Automatic	Aggregate	
Shrink Mixing	Automatic	Water	
Seasonal Restriction		Admixture	

(Signature and Seal of Professional Engineer)

(Date of Inspection)

OWNER'S CONFORMANCE AGREEMENT

Terms and Conditions:

The Company agrees to maintain these facilities and equipment in compliance with this Approved Quality Program Audit and Check List requirements at all times and will promptly correct any deficiencies that develop.

The Company agrees that all producing plants shall be MRMCA certified at all times.

The Company agrees to allow an MRMCA appointed Auditor to inspect the plant on a random or as needed basis.

Name of Company's signing Authority

Signature of Company's signing Authority

Title of Company's signing Authority

Email Address

Date

NOTES:

- 1. Non-Conformance with the requirements of this Audit may result in loss of this certification.
- The Audit and Check List indicates that plant facilities are satisfactory for the production of quality concrete when
 properly operated. The conformance of the concrete itself with specification and/or customer requirements must be
 verified by the Terms and Conditions of the sales agreement.

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